

TWELVE NEW SPECIES OF OSBORNELLUS
(HOMOPTERA-CICADELLIDAE) FROM
MEXICO, GUATEMALA, AND
PANAMA.

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Very little study has been made of the Mexican *Osbornellus* until recently when the author attempted to determine the species of this genus which were in the material collected by Dr. Alfons Dampf during the past few years in various parts of Mexico. Material in this genus was also collected by Dr. C. C. Plummer, Dr. J. S. Caldwell, Mr. E. E. Good, and the author during 1939 and 1941. Dr. Herbert Osborn described *mexicanus* as a *Scaphoideus* in 1900¹ and the author described eleven species in 1941.²

Osbornellus alaudus n. sp.

A large species resembling *consors* in general appearance but with distinct color markings and distinct male genitalia. Length 6-6.5 mm.

Vertex appearing broad and almost rounded at apex, a little wider at base than median length.

Color: Vertex pale with dark brown markings. Marginal line of vertex dark brown and another just above pale ocelli forming a minute pale spot at apex and an elongate enclosed spot either side. There is a larger pale spot enclosed with brown just above apex. An interrupted salmon colored band between anterior portions of eyes and a white band between eyes at base. Pronotum dark brown with irregular pale spots along anterior margin. Scutellum dark brown, with faint pale stripes on anterior margin and a triangular white spot about middle of outer margin on either side. Elytra smoky subhyaline with dark brown veins and dark spots on apex of each claval vein and on costal veinlets. Elongate brown markings occur in the discal cell and second antepical cell. Face brownish with pale arcs.

Genitalia: Female last ventral segment with the posterior margin strongly roundedly produced. Male plates long and tapering, exceeding pygofer. Aedeagus with a long basal spur near base extending half way to dorsal wall of pygofer. Body

¹ Jour. Cinc. Soc. Nat. Hist. 19: 197, 1900.

² Anales Escuela Nat. de Ciencias Biol. 2: 263-271, 1941.

of aedeagus curved sharply dorsally just beyond spur and longer than the height of the pygofer. The body of the aedeagus is almost uniform in width. A narrow, long spine-like spur arises on the caudal portion just after the aedeagus curves dorsally and extends almost to the blunt rounded tip of aedeagus.

Holotype male, allotype female and male and female paratypes from Cerro Punta, Panama, December 23, 1939. Collected by T. T. Howard.

Osbornellus acuminatus n. sp.

In form and general appearance resembling *alaudus* but with vertex more angularly produced and with distinct male genitalia. Length 6 mm.

Vertex bluntly angled as long at middle as basal width between the eyes.

Color: Vertex pale, heavily marked, color pattern similar to that of *alaudus* with a marginal black line on vertex and a heavy curved line from ocellus to apex on either side enclosing a small pale spot either side of apical pale tip. A small pale spot just above apex. A heavy dark transverse bar just back of supra apical spot. A broken orange band between anterior margins of eyes. A white band extending anteriorly at middle and margined with brown on posterior portion of vertex. Pronotum dark brown with pale mottling on anterior margin. Scutellum pale with darker basal angles. Elytra pale, tinged with brown. A spot on discal cell, elongated spots in other cells, spots at apices of claval veins and on costal veinlets, brown. Face brown with pale arcs.

Genitalia: Female last ventral segment with the posterior margin strongly roundedly produced. Male plates long, slender, decidedly exceeding pygofer. Aedeagus narrow at base, then enlarged and forming a dorsal thumb-like structure at dorsal portion of enlargement. Beyond this the apical half is narrowed and divided into two proximal parallel portions. The dorso-anterior of these is rather broad in lateral view and has a blunt rounded apex. The ventro-caudal portion is slender, pointed at apex and extends slightly beyond the other portion.

Holotype male and allotype female from Cerro Punta, Panama, collected March 4, 1940, by T. T. Howard.

Osbornellus appressus n. sp.

Resembling *scalaris* in form, coloration and general appearance but with distinct male genitalia. Length 5 mm.

Vertex bluntly angled, as long at middle as basal width between the eyes.

Color: Vertex pale brownish with a white cross on apex, the arms extending toward the ocelli. The base is pale, margined with brown and a white spur bordered with a brown line extends forward to about the middle on each side of a median brown line. Pronotum brown, mottled. Scutellum brown, with a white dash on each side of brown basal angles and a white triangular spot on each side about the middle. Elytra brownish subhyaline with dark brown veins and pale brownish spots in the center of several cells.

Genitalia: Female last ventral segment with posterior margin roundedly produced. The male connective is short and the aedeagus is more than three times as long. The base is narrow. At half its length it is enlarged abruptly and a short dorsal blunt spur is produced. Beyond this the apical portion is wider, and is cleft forming a dorsal narrow portion which is curved dorsally at apex and is blunt at tip. The ventral portion is wider, narrowed to form a pair of sharp pointed apices which extend beyond the dorsal curved portion.

Holotype male collected at Balsas, Guerrero, Mexico, August 15, 1936, by J. Parra. Allotype female from Finca Vergel, Chiapas, Mexico, May 19, 1935. Paratype males and females were collected at Balsas and at Iguala, September 11, 1939, by Dr. C. C. Plummer and the author at the same locality in October, 1941, by E. E. Good and the author. Paratypes are also at hand from Cocula, Huitziltepec, and Mezcala, all in the state of Guerrero, Mexico.

Osbornellus trimaculatus n. sp.

In form and general appearance resembling *acuminatus* but with distinct genitalia. Length 6 mm.

Vertex bluntly angled, slightly wider between eyes at base than median length.

Color: Vertex pale, marked with black and red. The dark markings are so arranged that there are several pale areas, composed of the ocelli, a small apical spot, a larger marginal spot each side between apex and ocelli, a triangular spot just above apex, and a smaller one either side located on an oblique line extending from base of triangular spot to eye. A reddish spot

either side of middle between anterior margins of the eyes and a broad transverse pale band across base interrupted at middle by a black line. Pronotum brown with two dark brown spots surrounded by white behind each eye. Scutellum brown margined with white on each side except a small brown spot each side about one-third the distance from base. A pair of separated white spots on middle at base. Elytra brownish subhyaline, veins brown. Apical margins of elytra, a spot in discal cell, apices of claval veins and costal veinlets marked with dark brown.

Genitalia: Female last ventral segment strongly roundedly produced. Male connective almost as long as aedeagus. Aedeagus enlarged near narrow base and with a dorsally produced thumb-like process which is one-third as long as apical portion. Beyond this process the aedeagus is gradually narrowed and curved dorsally then anteriorly to form a narrow, blunt pointed apex. The pygofer on the ventral apical portion forms a long pointed spine which extends caudally.

Holotype male collected at Monte Grande, Chiapas, Mexico, March 23, 1931, by J. Parra. Allotype female and female paratypes from Chiltepec, Oaxaca, March 1932, and San Cristobal, Oaxaca, Mexico, March 1938.

Osbornellus salsus n. sp.

In general appearance resembling *scalaris* but with markings more distinct and male genitalia distinct. Length 4.5 mm.

Vertex narrow, bluntly angled but strongly produced, slightly wider between eyes at base than median length.

Color: Vertex pale with dark brown markings. A brown line just below vertex margin. A wavy line arises next eye just back of ocellus on either side and extends to apex, thus forming a white margin between the brown lines and a white spot at apex with a larger one just above apex. An inverted white "T" divided in the middle by a brown line and bordered by a dark brown marginal line on base which forms a heavy, short, brown transverse bar just back of superapical white spot. Pronotum brown with pale and dark brown irregular spots along anterior margin. Scutellum pale with dark brown basal angles. Elytra subhyaline, veins brown, brownish spots at apex of each claval vein, a spot on discal cell, one on anterior cross vein and each of the costal veinlets.

Genitalia: Female last ventral segment strongly roundedly

produced. Male plates long, slender, exceeding pygofer. Aedeagus in the shape of a hand with the narrow wrist portion attached to the connective. Beyond this it is enlarged forming a dorsal thumb which is directed caudally. The first finger is narrow at base and enlarged and broadened at apex. The second finger is broad at base and convexly curved ventrally to form a pointed apex. Just beneath this is a pair of long slender processes which extend more than half the length of the shorter processes beyond their apices.

Holotype male, allotype female and male and female paratypes from Iguala, Guerrero, Mexico, September 11, 1939, collected by Dr. C. C. Plummer and the author. Female paratypes from Juitepec, Morelos, Mexico, September 6, 1939, collected by Dr. Plummer and the author.

***Osbornellus nigrocinctus* n. sp.**

In form and general appearance resembling *consors* but with markings on vertex more fused into an irregular band and with distinct male genitalia. Length 5.5 mm.

Vertex bluntly angled, distinctly wider between eyes than median length.

Color: Vertex pale with a dark brownish irregular band between ocelli. There are two slender oblique spurs that extend toward apex almost enclosing a pale spot and a shorter spur extends toward eyes on each side on posterior portion of band. Ocelli white. Pronotum brownish, with irregular white and dark brown spots on anterior border. Scutellum pale brown with a pale triangular spot about half way from base to apex on outer margin, either side. Elytra brownish subhyaline, veins dark brown, cells of clavus with milky white streaks. A large brown spot on middle of discal cell, a brown spot on each costal veinlet and apical margin brown. Face pale brown with pale arcs either side and a dark brown line just below margin of vertex.

Genitalia: Female last ventral segment with posterior margin roundedly produced. Male plates decidedly longer than pygofer. Aedeagus broad at base with a dorsally produced thick thumb-like process which is enlarged at apex and bears a short tooth on caudal margin. Main portion of aedeagus divided into three parallel portions which curve dorsally. The anterior portion is a broad blade which is decidedly longer than the second portion which is narrow and is only slightly separated from

the blade. The third portion is narrow and is the shortest of the three.

Holotype male collected at Tamazunchale, San Luis Potosi, Mexico, November 15, 1938, by Dr. J. S. Caldwell. Allotype female and paratype females collected at Finca Vergel, Chiapas during May and June, 1935.

***Osbornellus separatus* n. sp.**

In general appearance resembling *scalaris* but with a broad pale stripe extending from middle of apex to tip of scutellum. Male genitalia distinct. Length 5 mm.

Vertex bluntly angled, a little wider between eyes at base than median length.

Color: Vertex pale with a dark line just below ocelli and a waved line just above ocelli extending to apex and enclosing a white marginal band. A white triangular spot just above apex. Posterior two-thirds of vertex without dark markings. An orange-red blotch near either eye behind waved line shading to white on middle line and on basal third. Pronotum brown with central half pale. Scutellum white with brown basal angles. Elytra brownish subhyaline, veins brown, three white semicircular spots on clavus next commissural line. Costal veinlets, spots in discal and anteapical cells, and apical margin, brown.

Genitalia: Female last ventral segment strongly roundedly produced. Male aedeagus joined to a long rather narrow connective. The base is extended dorsally, forming a long, broad thumb-like structure which is convexly curved on the anterior margin. At the base of this process the aedeagus is cleft to form two long curved processes of about the same size which extend caudally, then curve dorsally extending beyond the dorsal margin of pygofer. These processes appear to be about parallel and the ventral one is divided into two distinct, somewhat divergent, portions at about half its length. Pygofer concavely indented on blunt apical portion.

Holotype male collected at Esmeralda, Chiapas, Mexico, November 18, 1930, by Dr. Alfons Dampf. Allotype female collected at Esperanza, Chiapas, Mexico, August 2, 1938, and male and female paratypes from Finca Vergel, Huixtle, and Esperanza, Chiapas, Mexico; Cuernavaca, Morelos, Mexico; Coatepeque, Guatemala; and Retalhuleu, Guatemala.

Osbornellus concentricus n. sp.

In form, coloration and general appearance resembling *scalaris*, but with distinct genitalia. Length 5 mm.

Vertex bluntly angled, a little wider between eyes at base than median length.

Color: Vertex pale with the submarginal and supermarginal black lines enclosing a pale margin. A pale spot just above apex, the inverted white "T" on the base of vertex margined with a brown border and orange spots between the base of the "T" and the anterior margins of the eyes. Pronotum brown with numerous irregular pale and dark brown spots along anterior margin. Scutellum pale with dark brown basal angles. Elytra brownish subhyaline with dark brown veins. The three semicircular white spots on clavus along commissural line are not conspicuous.

Genitalia: Female last ventral segment rather strongly roundedly produced on posterior margin. Male aedeagus in general appearance resembling the aedeagus of *separatus*. The finger-like dorsally directed process at the base is more slender and constricted just before apex. The main portion is divided into two long slender pointed parallel processes. The ventral process unlike the ventral process of *separatus*, is a single shaft. The pygofer is blunt and rounded at apex.

Holotype male, allotype female and male and female paratypes collected at Tamazunchale, San Luis Potosi, Mexico, November 15, 1938, by Dr. J. S. Caldwell. Paratype male taken in the low country on the Acapulco Road November 22, 1938, by Dr. Caldwell.

Osbornellus spinosus n. sp.

In form, coloration and general appearance resembling *scalaris* but with a conspicuous spine on apex of pygofer and with distinct genitalia. Length 5.5 mm.

Vertex bluntly angled, slightly wider between eyes at base than median length.

Color: Vertex pale, markings similar to those of *scalaris*. A black line just below margin and a waved black line just above forming a small white spot at apex and an elongated white spot either side between ocelli and apical spot. A triangular white spot just above apical spot. A broad short black bar across base of the inverted "T" which covers the basal portion. An orange spot either side between base of inverted "T" and anterior portion of eye. Pronotum brown with light and dark

spots along anterior margin. Scutellum brown with a white dash either side of basal angle and the apical margin bordered with white half way to base on either side. Elytra brownish subhyaline, veins dark brown, spots on apices of claval veins and costal veinlets brown.

Genitalia: Female last ventral segment rather broadly roundedly produced. Male pygofer with a long, sharp pointed spine extending caudally and ventrally from dorsal portion of apex. Aedeagus with a narrow base, a rather short, narrow dorsal process arising not far from base at the point where the aedeagus is enlarged dorsally and ventrally. Beyond it is gradually narrowed and curved dorsally to form a pointed apex. A short process arises not far from apex either side and extends a short distance but does not reach apex.

Holotype male collected at La Florida, Chiapas, Mexico, May 1931, by J. Parra, allotype female from Finca Vergel, Chiapas, Mexico, May 29, 1935, collected by Alfons Dampf, and male and female paratypes from both localities cited above and from Monte Alto, Veracruz, and Tuxtepec, Oaxaca, Mexico.

Osbornellus grandis n. sp.

Resembling *scalaris* in form, coloration and general appearance but with distinct genitalia. Length 5 mm.

Vertex bluntly angled, a little wider between eyes at base than median length.

Color: Similar to *spinusus* with the black submarginal line and a black supra marginal line enclosing the ocelli, a small spot at apex and an elongated spot either side which are white. A super apical white spot surrounded by a black margin, an orange spot either side next anterior portion of eye and the basal third white, margined with brown. Pronotum brown with pale and brown spots along anterior margin. Scutellum brown, a white dash on each side of basal angle and a white triangular spot on each side about half way between base and apex. Elytra brownish subhyaline, veins brown, a brown spot on apex of each claval vein, a spot on each costal veinlet, and apex of elytra brown margined.

Genitalia: Female last ventral segment roundedly produced on posterior margin. Aedeagus rather narrow in lateral view, a dorsal, rather thick process arising near base which is half as long as the apical portion and with a blunt apex. Apical half divided into three slender processes which are pointed at apex and are proximal for most of their length.

Holotype male, allotype female, and paratype males and females from Finca Vergel, Chiapas, Mexico, May 11-23, 1935, collected by Dr. Alfons Dampf. Paratype male collected at Tolosa, Oaxaca, January 2, 1932, by J. Parra.

Osbornellus reversus n. sp.

A pale species resembling *hyalinus* but with distinct male genitalia. Length 4.5-5 mm.

Vertex bluntly rounded, wider between eyes at base than median length.

Color: Pale yellow, scarcely marked. Veins on posterior portion of wing brown and usually anterior cross vein brown. Three pairs of brown spots along commissural line. A spot at the end of each claval vein and at tip of clavus. The central pair are usually the largest.

Genitalia: Female last ventral segment with posterior margin produced to form a blunt, rounded apex. Male aedeagus enlarged at base, where it joins with the connective. In lateral view it is rapidly narrowed beyond the enlargement to form a rather long, slender spine-like apex which extends caudally and curves slightly dorsally. At the base a dorsal process is attached to the enlarged portion. It is short, rather thick, and is in the form of a rather straight "S" which is reversed and the ends do not curve back sharply. The pygofer is tapered and bluntly pointed at apex.

Holotype male from Coatepec, Veracruz, Mexico, August 14, 1934. Allotype female collected at Finca Vergel, Chiapas, Mexico, May 20, 1935. Male and female paratypes from the same localities and from Esmeralda, Finca Maravillas, Monte Grande, Barra Honda, F. la Victoria, all in the State of Chiapas; and Chiltepec, Oaxaca, Mexico.

Osbornellus tumidus n. sp.

A small, blunt-headed species, in general appearance resembling *Xestoccephalus tessellatus* because of the mottled color pattern. Length 4 mm.

Vertex bluntly angled, about one fourth wider between eyes at base than median length.

Color: Vertex pale with a brown line just below margin. A waved line above margin forming a white marginal band with enlarged portions either side of middle and an enclosed white

super apical spot. Basal portion with two median elongated white stripes margined with brown. Pronotum brown with three pale spots on anterior margin at the center of each of which is a brown spot. Scutellum pale with darker basal angles. Elytra pale brownish subhyaline with dark brown spots. Claval veins pale, other venation dark brown. Spots at base of clavus, either side of commissural line, a spot on disc, costal and apical margins, dark brown.

Genitalia: Male plates short, not exceeding pygofer. The aedeagus is narrow in lateral view with a long dorsal spur near base which is more than half as long as the apical portion and is curved caudally at the apex. Beyond this the aedeagus curves slightly dorsally and is bent abruptly anteriorly forming a long, sharp pointed apical tooth which extends anteriorly. About half way between these two processes is a short tooth which curves anteriorly and dorsally.

Holotype male from Monte Grande, Chiapas, Mexico, March 23, 1931, collected by J. Parra.

MISCELLANEOUS BEHAVIORISTIC OBSERVATIONS UPON DIPTERA (CLUSIIDAE, CHLOROPIDAE, SCIOMYZIDAE).

BY GEORGE STEYSKAL, Detroit, Michigan.

The following observations were made in the vicinity of the writer's home in Detroit, Michigan, in 1941.

Clusia czernyi Johnson (Clusiidae), June 7. Two males were standing on a section of tree trunk which had been standing under the trees for several years, during which time it had become quite decayed and covered on the sides with *Polyporus* bracket fungus. One of the flies was noticeably larger than the other. He very slowly and stealthily approached the other fly, who noticed him and turned to face him directly. When the two flies were about two centimeters apart they stood perfectly still for over a minute. Then the larger fly commenced to raise and lower the tip of his black abdomen together with his closed wings. The smaller fly responded in like fashion. After continuing thus for a short time the larger fly suddenly leaped upon the smaller and was next seen with the wings of his victim in the grasp of his strong fore legs. The victim managed to free his wings but one leg remained in the attacker's grasp. The leg was also soon freed and the fly escaped. *Clusia*